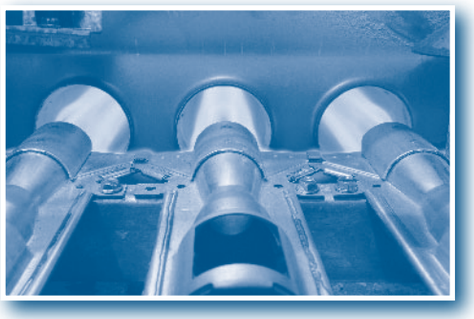

While companies recognize the value of natural gas as a versatile, clean-burning fuel, prices today are volatile.

Don't let natural gas prices burn your company!

Discover how to conserve natural gas and keep your energy bills to a minimum.

DOE is committed to helping industries lower their energy bills.

BestPractices offers your company

- Training
- Software tools
- No-cost assessments
- Tip sheets, guidebooks, and more
- Technology showcases

These tools and resources can help you cut costs, save energy, and reduce waste today.

Real savings could be just one step away...

After formalizing steam trap inspections, Velsicol Chemical Corporation reduced annual energy use at its Chestertown, MD, plant by 27.3 billion Btu—a 17% decrease. The project paid for itself in 2.5 months and achieved yearly financial savings of $80,000.

The Chestertown facility has two boilers with more than 300 steam traps and annually produces 25,000 tons of chemicals.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

For Additional Information, Please Contact:

Energy Efficiency and Renewable Energy Information Center
1-877-EERE-INF (1-877-337-3463)
www.eere.energy.gov/industry

Industrial Technologies Program
Energy Efficiency and Renewable Energy
U.S. Department of Energy
Washington, DC 20585-0121

Printed with a renewable source ink on paper containing at least 50% wastepaper, including 10% postconsumer waste.

DOE/GO-102006-2281
February 2006

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Industrial Technologies Program

Reduce Natural Gas Use In Your Industrial Steam Systems

Ten Timely Tips

Ten Tips for Saving Natural Gas in Steam Systems

Think saving energy will require costly new equipment?

Think again.

Cutting your natural gas bill can be as simple as adjusting a dial.

Get started with some of these simple, low-cost steps, and be sure to encourage active worker involvement. You may also want to consider additional measures, such as energy assessments available through the U.S. Department of Energy's (DOE) BestPractices program.

Equipment Maintenance

- Inspect and recalibrate thermocouples in boilers to obtain more accurate temperature measurements and help increase boiler efficiency.
- Install removable insulation on uninsulated valves, pipes, and fittings to reduce losses in the steam distribution system.

  Potential energy savings of 1% to 3%

- Inspect steam distribution systems for leaks and repair where necessary. Possible sources of unnoticed leaks include piping, valves, process equipment, steam traps, flanges, and seals.

  Potential energy savings of up to 5% to 10%

- Regularly clean strainers upstream of steam traps to prevent particle accumulation. Excessive deposition can hasten the need for repair or replacement.

  Potential boiler efficiency gains of 2% to 5%

Facility Issues

- Measure and manage ventilation in the plant. Use an economizer to optimize outside air use. Replace warped or worn outside air dampers.
- Reexamine your gas contract. Consider renegotiating terms to gain lower rates with utilities.

Operations

- Minimize surplus combustion air by tuning damper settings on boiler draft fans, installing over-fire draft control systems, sealing doors, etc. Excess air in the combustion chamber contributes to heat loss via flue gas escape.

  Potential gain in furnace efficiency of 1% when air and oxygen content are reduced by 20% and 2%, respectively

- Lower the water temperature in boilers to reduce short-cycle loss as well as convective and radiant heat loss.

  Potential boiler efficiency gains of 1% when the stack gas temperature is decreased by 40˚F

- Prevent scale accumulation by ensuring water treatment systems are operating effectively. Scale build-up in the boiler tubes inhibits both throughput and heat transfer.

  Potential gains in boiler efficiency of 3% to 7%

- Schedule operations to reduce wide variations in steam demand.

  Potential energy savings of 2% to 5%

Discover more ways for your company to reduce natural gas bills by visiting:

Industrial Technologies Program
BestPractices
www.eere.energy.gov/industry/bestpractices

DOE's Save Energy Now
www.eere.energy.gov/industry/saveenergynow

Alliance to Save to Energy
www.ase.org

Gas Technology Institute
www.gastechnology.org

American Gas Association
www.aga.org